

CLAIMS

What is claimed is:

1. A method for transmitting data in a code division multiple access (CDMA) communication network, comprising:
 - allocating a common Walsh code to a group of transceivers;
 - allocating a respective, different long code to each transceiver in the group; and
 - time-multiplexing transmission of the data to the transceivers in the group by applying the common Walsh code and the respective long code of each transceiver to data packets directed to the transceivers so as to form multiplexed data packets, and transmitting the multiplexed data packets in sequence over the network to the group of transceivers.
2. The method according to claim 1, wherein the transceivers in the group have respective data throughput rates, and wherein transmitting the multiplexed data packets comprises identifying a specific transceiver in the group having a minimum data throughput rate among the data throughput rates of the transceivers in the group, and applying the respective long code to transmit at least one multiplexed data packet to the specific transceiver.
3. The method according to claim 1, wherein the transceivers comprise mobile transceivers in a cellular network.
4. The method according to claim 1, wherein the transceivers are physically coupled by communication cables with a central transceiver operative in the network.
5. The method according to claim 1, wherein the transceivers are configured to receive the multiplexed data packets at a common data transfer rate.
6. The method according to claim 1, wherein the transceivers are adapted to communicate using one or more voice channels and one or more data channels, and wherein the common Walsh code defines one of the data channels.
7. A method for transmitting data in a code division multiple access (CDMA) communications network, comprising:
 - allocating a plurality of different Walsh codes to respective sets of transceivers;
 - allocating a respective, different long code to each of the transceivers in the sets;

and

for each Walsh code, time-multiplexing transmission of the data to the transceivers in the respective set by applying the Walsh code and the respective long code of each transceiver of the respective set to data packets directed to the transceivers so as to form multiplexed data packets, and transmitting the multiplexed data packets in sequence over the network to the sets of transceivers.

8. The method according to claim 7, wherein allocating the plurality of different Walsh codes comprises measuring a voice-channel power used by a central transmitter for transmitting voice channels to the transceivers, and allocating and de-allocating at least one of the different Walsh codes in response to at least one of an excess power available to the central transmitter above the voice-channel power, an additional Walsh code available to the transmitter, and cell site modem resources available to the transmitter.

9. The method according to claim 7, and comprising assigning and de-assigning at least one of the different Walsh codes to a specific receiver comprised in the transceivers in response to a data call directed to the specific receiver.

10. The method according to claim 7, and comprising assigning each set of transceivers to two or more groups of transceivers, and assigning each group to receive the data at a different respective data transfer rate.

11. The method according to claim 10, and comprising setting, for each group, the different transfer rate in response to a radio receiving condition of the group at a central transceiver for the transceivers.

12. The method according to claim 10, and comprising re-allocating a specific transceiver comprised in a first group comprised in the two or more groups to a second group comprised in the two or more groups in response to radio conditions at the specific transceiver.

13. Apparatus for transmitting data in a code division multiple access (CDMA) network, the apparatus comprising:

a channel manager which is adapted to:

allocate a common Walsh code to a group of transceivers, and

allocate a respective, different long code to each transceiver in the group; and

a radio transmitter, which is adapted to:

time-multiplex transmission of the data to the transceivers in the group by applying the common Walsh code and the respective long code of each transceiver to data packets directed to the transceivers so as to form multiplexed data packets, and

transmit the multiplexed data packets in sequence over the network to the group of transceivers.

14. The apparatus according to claim 13, wherein the transceivers in the group have respective data throughput rates, and wherein the radio transmitter is adapted to identify a specific transceiver in the group having a minimum data throughput rate among the data throughput rates of the transceivers in the group, and apply the respective long code to transmit at least one multiplexed data packet to the specific transceiver.

15. The apparatus according to claim 13, wherein the transceivers comprise mobile transceivers in a cellular network.

16. The apparatus according to claim 13, wherein the transceivers are physically coupled by communication cables to the radio transmitter.

17. The apparatus according to claim 13, wherein transmitting the multiplexed data packets comprises transmitting the multiplexed data packets at a common data transfer rate.

18. The apparatus according to claim 13, wherein the transceivers are adapted to communicate using one or more voice channels and one or more data channels, and wherein the common Walsh code defines one of the data channels.

19. Apparatus for transmitting data in a code division multiple access (CDMA) communications network, comprising:

a channel manager which is adapted to:

allocate a plurality of different Walsh codes to respective sets of transceivers, and

allocate a respective, different long code to each of the transceivers in the sets; and

a radio transmitter, which is adapted, for each Walsh code, to:

time-multiplex transmission of the data to the transceivers in the respective set by applying the Walsh code and the respective long code of each transceiver of the respective set to data packets directed to the transceivers so as to form multiplexed data packets,, and

transmit the multiplexed data packets in sequence over the network to the group of transceivers.

20. The apparatus according to claim 19, wherein allocating the plurality of different Walsh codes comprises measuring a voice-channel power used by the radio transmitter for transmitting voice channels to the transceivers, and allocating and de-allocating at least one of the different Walsh code in response to at least one of an excess power available to the radio transmitter above the voice-channel power, an additional Walsh code available to the transmitter, and cell site modem resources available to the transmitter.

21. The apparatus according to claim 19, wherein the channel manager is adapted to assign and de-assign at least one of the different Walsh codes to a specific receiver comprised in the transceivers in response to a data call directed to the specific receiver.

22. The apparatus according to claim 19, wherein the channel manager is adapted to assign each set of the transceivers two or more groups of transceivers, and wherein the radio transmitter is adapted to transmit the data to each group at a different respective data transfer rate.

23. The apparatus according to claim 22, wherein the radio transmitter is adapted to set, for each group, the different transfer rate in response to a radio receiving condition of the group at the radio transmitter.

24. The apparatus according to claim 22, wherein the channel manager is adapted to re-allocate a specific transceiver comprised in a first group comprised in the two or more groups to a second group comprised in the two or more groups in response to radio conditions at the specific transceiver.

25. An apparatus for transmitting data in a code division multiple access (CDMA) communication network, comprising:

means for allocating a common Walsh code to a group of transceivers;

means for allocating a respective, different long code to each transceiver in the group; and

means for time-multiplexing the data to the transceivers in the group by applying the common Walsh code and the respective long code of each transceiver to data packets directed to the transceivers so as to form multiplexed data packets, and

means for transmitting the multiplexed data packets in sequence over the network to the group of transceivers.

26. The apparatus according to claim 25, wherein the transceivers in the group have respective data throughput rates, and wherein the means for transmitting the multiplexed data packets comprises means for identifying a specific transceiver in the group having a minimum data throughput rate among the data throughput rates of the transceivers in the group, and means for applying the respective long code to transmit at least one multiplexed data packet to the specific transceiver.
27. The apparatus according to claim 25, wherein the transceivers comprise mobile transceivers in a cellular network.
28. The apparatus according to claim 25, wherein the transceivers are physically coupled by communication cables with a central transceiver operative in the network.
29. The apparatus according to claim 25, wherein the transceivers are configured to receive the multiplexed data packets at a common data transfer rate.
30. The apparatus according to claim 25, wherein the transceivers are adapted to communicate using one or more voice channels and one or more data channels, and wherein the common Walsh code defines one of the data channels.